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Sand Colic: Risk Factors, Detection, Treatment, and Prevention

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Background

Colic (abdominal pain), caused from the accumulation of sand and small pieces of gravel in the large colon, continues to be a problem for horses. In one study[1], of the cases of colic with an identifiable cause, 5% of the reported colic cases were due to sand. This was greater than those caused by gas (3%), mesenteric arteritis caused by small strongyles (1%), and ingestion of moldy grain (1%). It is interesting to note that the cause is unknown with the majority of colic cases. It is unclear how much sand accumulation is needed to create signs of colic. A retrospective study[2] in California found, of the surgical sand colic cases reviewed, over two-thirds of these cases resulted in sand impaction, while 25% had an accompanying displacement or twist (volvulus) of the large colon. While not the most common cause of colic[3], sand colic can be serious and is preventable. This fact sheets discusses the risk factors associated with sand colic and offers preventative tips to minimize the occurrence of sand colic in horses.

Equine Digestive Tract: Large Colon

One of the unique features of equine is an adaptation of the cecum and first section of the colon to utilize forages. The cecum and large colon act as a fermentation and absorption vat where microorganisms utilize the cellulose in forages to generate usable energy. As feed passes through the digestive tract, heavier sand particles sink to the bottom of the large colon. Over time, sand can accumulate in the large colon to such an extent that the horse experiences abdominal pain, manifested by colic. Figure 1 shows a portion of the equine intestinal tract impacted with sand.

Figure 1. Sand impaction of the equine large colon. (Image from www.thehorse.com/enews/7262006.html)

Risk Factors

Horses that are fed on the ground or housed in very sandy soils are at higher risk for sand accumulation and colic. In some areas of Utah (i.e., Moab), sand colic is commonly seen.[4] This might be due to the soil type and quality seen in arid, sandy parts of Utah. Sand colic is not just limited to southern Utah but can be found throughout the state. In one study[5], pasture quality was associated with a risk for fecal sand excretion. Horses housed on poor quality pastures were at greater risk. Horses housed and/or fed in paddocks were also at greater risk.

Diagnosing Sand Colic

Often the cause of colic can be difficult to determine; however, sand colic may show some clinical signs that are unique, such as diarrhea. Unfortunately, enough sand can cause an impaction or blockage which will mimic other forms of colic. An experienced veterinarian may be able to listen for unusual abdominal sounds associated

with the large colon. They have been described as similar to water and sand at the beach. This method has proven to be effective and sensitive in diagnosing sand in the large colon.[6] Abdominal radiographs have also been used to diagnose accumulation of sand in the large colon. This requires technique and equipment that might not be readily available to the average veterinarian. Another more common technique for determining if there is an accumulation of sand is to look for it in the feces. If there is sand present in the feces, then the assumption can be made that sand is settling into the large colon.

These techniques are fairly straightforward and use the concept that heavy particles fall to the bottom in solution while lighter ones remain suspended. Think of the theory behind panning for gold. One method uses an empty, clean bucket. With a gloved hand, gather some fresh fecal material (about 5 to 8 biscuits or a good handful) directly from the rectum or from the top of a fecal pile of the horse in question; being careful not to select fecal material that has come in direct contact with the ground and sand (Figure 2).

Figure 2. Obtaining a fecal sample to evaluate for sand colic, being careful to take a sample from material that has not come in contact with the ground (sand).

Place the fecal material in a bucket and fill half full with clean water. It might be noted here to only fill the bucket to a level that does not go over the glove cuff when mixing. With the same gloved hand, break up the fecal biscuits in the water and mix well (Figure 3).

After letting the mixture sit for a minute or so, pour off most of the water, being careful not to pour off too much. Repeat the mixing and diluting with water several times. Finally, slowly and carefully empty the bucket. At the end, any sand will be left behind and noticed in the crease between the sidewall and bottom of the bucket (Figure 4).

Figure 3. Mixing the feces with water in a bucket. Note that the water level should not exceed that of the glove cuff.

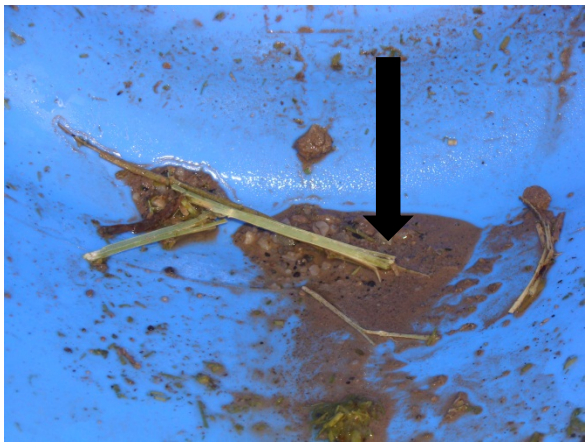

Figure 4. Sand and small pieces of gravel left in the bucket (arrow) after the water mixture is poured off.

A similar method also uses a long-sleeved, large animal OB glove and fecal material. While holding a small amount of fecal material in the palm of your gloved hand, turn inside-out so that the fecal material is now inside. Fill the glove half full with water and tie the cuff closed. Gently massage mixture until the fecal material is evenly mixed, being careful not to rupture or tear the glove's seams. Allow the mixture to settle with fingers of glove pointing down (Figure 5).

Any sand should settle to the fingertips of the glove. Rub each glove fingertip, feeling for sand or grit. You can also release the water from the glove (being careful not to release much liquid from the finger tips) and cut off the fingertips of the glove. Invert the cut off tips and visually look for sand.

Figure 5. Fecal-sand evaluations using an OB glove. Note that heavier particles separate into the finger tips.

Treatment

The only recognized and advocated[7] treatment to get rid of sand accumulation is to feed psyllium. Psyllium is insoluble fiber and when mixed with water, swells to form a gel. It is theorized that this gel coats the digestive tract and surrounds sand particles allowing them to move along the digestive tract and out. It might be interesting to note that in one controlled study[8], feeding psyllium had no effect on sand evacuation from the large colon. Despite this single study, psyllium is commonly used as feed additive to treat and prevent sand accumulation in the large colon. Psyllium can be found as a supplement at veterinary clinics or most major feed stores. Read and follow the directions carefully. Metamucil, commonly found at any grocery store, contains the same active ingredient as commercially marketed psyllium.

A horse with sand accumulation to the point of creating colic signs should be provided immediate veterinary care.

Prevention

The following steps will minimize the risk from sand accumulation. (Not all are practical for every horse owner.)

- Feeding horses off the ground or on ground feeders with underneath mats
- Grazing horses on good quality pasture
- Limiting access to sandy yards and paddocks
- Feeding a high-bulk diet[7]
- Psyllium fed daily for 1 week out of every month
- Checking feces for sand accumulation

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